

37711

S/139/62/000/002/003/028  
E032/E514

Y4.7700

AUTHOR: Kobtsev, Yu.D.

TITLE: On the electrical conductivity of oxide films on titanium diboride specimens

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.2, 1962, 21-24

TEXT: Baked specimens of  $TiB_2$  were found to have an electrical conductivity which differed from specimen to specimen depending on the time and the temperature in the oxidizing medium. This is due to an oxide film formed on the surface of hot specimens. The oxidation of  $TiB_2$  is described by  
 $2TiB_2 + 5O_2 = 2TiO_2 + 2B_2O_3$ . It is shown that the dependence of the electrical conductivity on the time of oxidation  $\tau$  is given by

$$\sigma = \frac{2j}{U} \left\{ a + (A \tau^{0.5} + B\tau) \left[ \frac{20}{\gamma_{TiB_2} \left( \frac{M_{ok}}{M_{TiB_2}} - 1 \right)} - 1 \right] \right\}^2 \quad (8)$$

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On the electrical ...

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where  $j$  is the current density,  $U$  is the potential difference applied to the specimen,  $\gamma_{\text{TiB}_2}$  is the specific gravity of  $\text{TiB}_2$ ,  $M_{\text{ok}}$  is the weight of the oxides obtained in the oxidation of 1 gram molecule of the compound,  $M_{\text{TiB}_2}$  is the molecular weight of  $\text{TiB}_2$  and  $a$  represents the unoxidized part of the specimen;  $A$  and  $B$  are constants describing the rate of oxidation and the rate of evaporation of  $\text{B}_2\text{O}_3$ , respectively. The formula was checked experimentally and was found to be satisfactory. Thus, as the oxide film grows, the conductivity at first decreases rapidly and then (after 6 to 10 hours) much more slowly. The resistance of the specimen increases in proportion to the thickness of the oxide film and the increase in weight per unit surface. The volt-ampere characteristics of the specimens are nonlinear and form a family of curves with slopes depending on the time of oxidation. Production of a nonhomogeneous oxide layer on the surface of the specimen is a method of producing nonlinear resistors and this is now being used in the Department of Dielectrics and Semiconductors of the Order of Lenin Kiev Polytechnic Institute. There are 4 figures and 1 table.

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On the electrical ...

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ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskoy institut  
(Order of Lenin Kiev Polytechnic Institute)

SUBMITTED: November 25, 1960

Card 3/3

KOBTSEV, Yu.D.

Problem of electroconductivity of oxide films on titanium diboride samples. *Izv.vys.ucheb.sav.;fis.* 2:21-24 '62. (MIRA 15:7)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.  
(Titanium diboride--Electric properties)  
(Oxides--Electric properties)

ACCESSION NR: AR4015678

5/0061/63/000/023/0045/0045

SOURCE: RZh. Khimiya, Abs. 23B262

AUTHOR: Kobtssev, Yu. D.

TITLE: Investigation of the electroconductivity of oxidized titanium diboride

CITED SOURCE: Izv. Kiyevsk. politekh. in-ta, v. 40, 1962, 89-98

TOPIC TAGS: titanium, titanium diboride, titanium oxide, oxidized titanium diboride, titanium diboride conductivity

TRANSLATION: The dependence of the electroconductivity of  $TiB_2$  on the time of oxidation was determined on  $TiB_2$  samples heated in air to 1000C. At the beginning of the oxidation, a mixture of  $TiO_2$  and  $B_2O_3$  is formed on the surface of the samples, and the magnitude of the resistance increases proportionately to the thickness of the oxide film and the increase in weight per unit of surface area. A. Sh.

SUB CODE: IC

DATE ACQ: 09Jan64

ENCL: 00

Card 1/1

NEKRASOV, M.M., kand. tekhn. nauk; KOBTSKY, Yu.D., inzh.

Nonlinear resistors based on oxidized titanium diboride. Vest.  
elektrom 34 no.6:40-43 Je '63. (MIRA 16:7)

(Titanium boride)

(Electric resistors)

EWTC(11)/BDS--AFPTC/ASE

ANIMATION NR: AP3004043

8, 01 59/63 000 003/0105/0107

AUTHOR: Robtsey, Yu. D.

TITLE: On the possibility of producing high-temperature thermistors

SOURCE: IVUZ. Fizika, no. 3, 1963, 105-107

TOPIC TAGS: high-temperature titanium diboride thermistor, titanium diboride thermistor, high-temperature thermistor

ABSTRACT: High-resistance thermistors with resistances varying a hundred and a thousandfold with a rise in temperature from 20 to 600C have been produced by adding a small quantity of TiN at 1200C to TiB<sub>2</sub>, the initial material. The oxidation of TiN during the annealing process accounts for the nonlinear variation of resistance with temperature, while the titanium oxides resulting from the process make it possible to produce thermistors with resistances from 50 kohm to 150 Mohm. The higher the percentage of oxide content, the higher the resistance at room temperature and the sharper the variation of resistance when the temperature rises to 600C. Investigations of the cooling of the thermistors have shown that their inertia time varied between 26 to 58 sec depending on the resistance at room temperature of the different specimens. Orig. art. has: 3

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ASSOCIATION NR: AP3004043

figures, and 1 table.

ASSOCIATION: Kiyevskiy Politekhnikheskiy Institut (Kiev Polytechnic Institute)

SUBMITTED: 17Apr62

DATE AQ: 15Aug63

ENCL: 00

SUB CODE: 8D

NO REF SOV: 000

OTHER: 000

18/00  
Card 2/2



L 10521-63

808

ACCESSION NR: AP3004044

8/0139/43/000/003/0109/0109

AUTHOR: Kobtsev, Yu. D.

TITLE: On the possibility of obtaining nonlinear resistances with an oxide surface layer

SOURCE: IVUZ. Fizika, no. 3, 1963, 108-109

TOPIC TAGS: nonlinear resistance, titanium diboride oxidation, optimum oxidation time, titanium diboride

ABSTRACT: In a study of nonlinear resistances based on TiB<sub>2</sub>, it was found that the deposition of oxide layers on TiB<sub>2</sub> specimens at a temperature of 1000C produces nonlinear resistances which operate stably in the 150 to 200C range. It was also found that 1) the optimum oxidation time, which yields the highest values of the nonlinearity coefficient, is within 1.5 to 3.5 hr, and 2) nonlinearity of resistances is maintained within a wide range of frequencies and disappears completely at 2 kc. Orig. art. has: 3 figures and 1 table

ASSOCIATION: Kiyevskiy politekhnicheskii institut (Kiev Polytechnic Institute)

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808/1A

Card 2/2

L 9991-63

ACCESSION NR: AP3000335

EWG(k)/BDS--APFTC/ASD--Pa-4--AT/IJP(C)

8/0142/63/006/002/0192/0195

AUTHOR: Kobtsev, Yu. D.

TITLE: New wide temperature range thermistor

SOURCE: Izv. VUZ: Radiotekhnika, v. 6, no. 2, 1963, 192-195

TOPIC TAGS: thermistor temperature range, titanium diboride, thermal stability, artificial aging, thermistor resistance, temperature dependence, volt-ampere curves

TEXT: Some experimental results in broadening the temperature range of thermistors through the use of a new basic material are presented. Titanium diboride (TiB sub 2) was chosen for this purpose because of the ability to retain its mechanical properties at high temperatures, for its thermal and oxidation stability, and since it is a good electrical conductor. The TiB sub 2 was doped with heavily oxidized titanium nitride, which created

Cord

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L 9991-63

ACCESSION NR: AP3000335

nonuniformities in the crystal microstructure resulting in improved thermal stability. Specimens were subjected to artificial aging at maximum permissible temperatures, which revealed an initial rise in thermistor resistance which then tapered off to a stable value. Plotted data show that the resistance of thermistors tested in the 20-600C range drops by a factor of the order of thousands. Especially sharp temperature dependence was shown by thermistors whose resistance at 20C ( $R_{sub 20}$ ) exceeded 3-5 Mohm; e.g., a thermistor having an  $R_{sub 20}$  of 150 Mohm drops to 7.5 kohm at 600C. Initial portions of thermistor volt-ampere curves are linear up to a certain magnitude of current. The thermistors described are suggested for use where long periods of operation are required in the temperature range of 20 to 600C under working voltages from 250 to 1000 v. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Kafedra dielektrikov i poluprovodnikov Kiyevskogo ordena Lenina politekhnicheskogo instituta (Department of Dielectrics and Semiconductors of the Kiev Polytechnic Institute)

Card 2/82

NEKRASOV, M.M., kand.tekhn.nauk; KOBTSEV, Yu.D., inzh.

Heat-stable resistors and thermistors with oxidizing titanium dioxide. Elektrotehnika 34 no.12:50-51 D '63. (MIRA 17:1)

estimates the dependence of the electrical conductivity of titanium

"APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723420002-1

(10, 44, 10)

the method for producing the same is as follows:

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L 8557-66 EWT(1)/EWT(m)/EWP(b)/EWP(e)/EWP(t) IJP(c) JD  
 ACCESSION NR: AP5021176 UR/0139/65/000/004/0100/0104 67

AUTHOR: Kobitsky, Yu. D.

TITLE: On the contribution of the electric conductivity of oxidized titanium diboride

SOURCE: IVUZ. Fizika, no. 4, 1965, 103-104

TOPIC TAGS: electric conductivity, titanium compound, boron containing alloy, resistivity, sintering, thermal stability

ABSTRACT: The author considers the possibility of calculating the electric conductivity of heterogeneous systems based on oxidized titanium diboride, using the formulas for generalized conductivities, developed by V. I. Odalevskiy (ZhTF v. 11, 6, 667-685, 1951). To check the applicability of these formulas, samples of titanium diboride were pressed and sintered from microscopic powder, using a procedure described by the author earlier (Izv. vuzov SSSR, Fizika, No. 2, 21-24, 1962). The calculated volume resistivities of these samples agreed well with the experimental result when allowance is made for the dependence of the porosity of the samples on the preparation method and on the heat treatment. It is concluded that the use of such calculations makes it possible to design resistances with good thermal stability and prescribed characteristics. Parameters of several

Card 1/2

L 8557-66

ACCESSION NR: AP3021176

linear resistances prepared by this method are presented. Orig. art. has: 2 figures, 4 formulas, and 3 tables. 3

ASSOCIATION: Kiyevskiy politekhnicheskii institut (Kiev Polytechnic Institute) 011, 55

SUBMITTED: 23Dec63

ENCL: 00

SUB CODE: KE

NR REF SOV: 006

OTHER: 000

jw  
Card 2/2



L 11141-66 EWT(1)/EWT(m)/EWP(t)/EWP(e)/ETI IJP(c) JD

ACC NR: AP6027244

SOURCE CODE: UR/0109/66/011/008/1523/1525

AUTHOR: Kobtsev, Yu. D.; Kuz'menko, A. I.

273

ORG: Kiev Polytechnic Institute (Kiyevskiy politekhnicheskii institut)

TITLE: Voltage-controlled nonlinear resistor made of titanium  
diboride 27 15 27

SOURCE: Radiotekhnika i elektronika, v. 11, no. 8, 1966, 1523-1525

TOPIC TAGS: resistor, titanium compound, variable resistor

ABSTRACT: A nonlinear resistor made of titanium diboride has been developed. The resistor is voltage-controlled and is made by compacting and baking 5—10  $\mu$  powder containing 71% titanium, 28% boron, and 1% carbon. Resistance is varied by impressing a control field on the specimen perpendicular to the working field. To obtain maximum variation of the resistance, the control field gradient is maintained several times greater than the working field gradient. Figure 1 shows the volt-ampere characteristics of the resistor for different control voltages; curves 1, 2, 3, 4, and 5 were obtained for control voltages of 0, 1, 3, 5, and 7 v, respectively. Changes in the control voltage from about -6 to +6 v and in the working voltage from 1 to 8v produced a 34 to 100% change in the resistance of the specimen.

Card 1/2

UDC: 621.316.826

Card 2/2 ns

KOBTSEVA, I.Ya.

Degree of divisibility of the Universal Decimal Classification  
indexes. NTI no.5:16 '64. (MIRA 17:10)

1. Starshiy redaktor otdela obrabotki TSentral'noy nauchno-  
tekhnicheskoy biblioteki Ministerstva putey soobshcheniya.

S/129/62/000/009/004/006  
E073/E435

**AUTHORS:** Vasil'yeva, A.G., Candidate of Technical Sciences,  
Kobtseva, T.Ye.

**TITLE:** Influence of ultrasonic oscillations on the size of  
austenite and pearlite grains .

**PERIODICAL:** Metallovedeniye i termicheskaya obrabotka metallov,  
no.9, 1962, 22-23. + 1 plate

**TEXT:** The influence of ultrasonics (21 kc/s) on the proneness  
of austenite grains to grow and to decompose was studied on  
Steel 45. The specimens were hardened or normalized at various  
temperatures with holding times of 30 min, each experiment being  
conducted with and without the ultrasonic treatment; the  
specimens were tuned to the resonance frequency. To prevent  
decarburization, the specimens were heated in a salt bath.  
The ultrasonics were applied during heating (from 650°C onwards),  
holding and subsequent cooling. After the heat treatment,  
hardness measurements were taken, the microstructure examined  
and the grain size determined.

**Conclusions:** Ultrasonic treatment applied during heating brought  
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S/129/62/000/009/004/006  
E073/E435

Influence of ultrasonic ...

about a coarsening of the austenitic grain leading to the formation of coarse acicular martensite; application of ultrasonics during the cooling, when austenite is transformed into pearlite, caused refining of the pearlite grain. There are 3 figures.

ASSOCIATION: MVTU imeni Bauman

Card 2/2

KOBULADZE Ch.

Tistsishvili, No., Kiparenko, T. and Kobuladze, Ch. - "Vitamin C content in certain plants of Soviet Georgia, " Trudy Tbilis. Gos. un-ta im. Stalina, Vol XXXIa, 1948, p. 13-16, (In Georgian, resume in Russian), - Bibliog: 5 items

SO: U-4074, 29 Oct 53, (Letopis 'Zhurnal 'nykh Statoy, No. 10, 1949).

KOBULADZE, Ch.

TSITSISHVILI, N. S., KIPARENKO, T. and KOBULADZE, Ch. "The vitamin C content of a variety of apples in certain fruitgrowing areas of eastern Georgia," Trudy Tbilis. gos. unta im. Stalina, Vol XXXIIIa, 1949, p. 33-42, (In Georgian, resume in Russian),  
- Bibliog: 9 items

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

KOBULADZE, O.T.

Change in the amount of proteins and starch in the grain of Italian millet under the influence of agrotechnical background and sonality. Soob. AN Gruz. SSR 30 no.5:573-578 My '63.

(MIRA 16:11)

1. Institut zemledeliya Gruzinskoy SSR, Tbilisi. Predstavleno akademikom S.V.Durmishidze.

38130. KOBULASHVILI. SH.

Iskusstvennyy kholod v mysnoy promyshlennosti. Mys. industriya  
SSSR, 1949, No. 6, s. 20-25



KOBULASHVILI, SH., Eng.

Refrigeration and Refrigerating Machinery

Quick-freeze apparatus with intensive air movement, Khol.tekh. 30, no. 1, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

KOBULASHVILI, Sh., inzhener; YAKOBSON, V., inzhener.

DU-3 remote control level indicator for ammonia and diagrams for its  
connection. Khol.tekh.31 no.1:5-9 Ja-Mr '54. (MLMA 7:4)  
(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh.

KOBULASHVILI, Sh., inshener.

Automatized ammonia systems of direct expansion. Khel.tekh.  
31 no.2:5-17 Ap-Je '54. (MIRA 7:7)

(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh. N.

BOZHENKEL'D, Lev Markovich, doktor tekhnicheskikh nauk, professor; YKACHNY, Anatoliy Georgiyevich, kandidat tekhnicheskikh nauk, dotsent; MARTYHOVSKIY, B.S., professor, doktor tekhnicheskikh nauk, retsensent; RADYL'KES, I.S., professor, doktor tekhnicheskikh nauk, retsensent; KOBULASHVILI, Sh.N., inzhener, retsensent; NIKOLAYEVA, N.G., redaktor; SUDAK, D.M., tekhnicheskii redaktor.

[Refrigerating machinery and apparatuses] Kholodil'nye mashiny i apparaty. Moskva, Gosizd-vo trgovoi lit-ry, 1955. 584 p. Supplement - [Thermodynamic diagrams of refrigerator operating mechanisms] Termodynamicheskie diagrammy rabochikh tel kholodil'nykh mashin. 1955. 17 diagra. (MIRA 8:4)

(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh.; BAYTL'KES, I., professor, doktor tekhnicheskikh nauk.

For continued progress in refrigeration engineering. Khel.tekh.32:  
no.3:1-6 J1-S '55. (NIRA 9:1)

1. Director Vsesoyuznogo Nauchno-issledovatel'skogo kholodil'nogo  
instituta (for Kobulashvili).  
(Refrigeration and refrigerating machinery)

**KOBULASHVILI, Sh.N., inzhener.**

**Automation of ammonia refrigerating installations. Trudy LTIKHP 10:  
101-102 '56. (MLRA 10:6)**

**1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy pro-  
myshlennosti imeni A.I. Mikoyana.  
(Refrigeration and refrigerating machinery)**

GORBUNOV, M., inzhener; KOBULASHVILI, Sh., inzhener; TKACHEV, N., inzhener.

Refrigeration industry in France. Khol.tekh.33 no.1:42-53 Ja Nr '56.  
(MIRA 9:7)

(France--Refrigeration and refrigerating machinery)(France--Cold storage warehouses)

Library General Problems. Methodology. History. Scientific A  
Institutions and Conferences. Instruction.  
Questions Concerning Bibliography and Scien-  
tific Documentation

Abst ~~JAPPROVED FOR RELEASE: 09/18/2001~~ ~~Ref Zhur-Khmel'ya, No 3, 1958, 6872~~ CIA-RDP86-00513R000723420002-

Author : Sh. Kobulashvili  
Inst : A. I. Miliyan's All-Union Scientific Research  
Institute of Refrigerative Industry  
Title : A. I. Mikoyan's All-Union Scientific Research  
Institute of Refrigerative Industry  
Orig Pub : Kholodil'naya tekhnika, No 3, 7-12 (1957)  
Abstract : To the 40th anniversary of the Great October  
Socialist Revolution. A review of Institute  
activities during 27 years

Card 1/1

BADYL'KHS, I.; KOBULASHVILI, Sh.

Combined cycle of refrigerating machinery. Khol. tekhn. 34 no.4:9-12  
O-D. '57. (MIRA 11:1)

(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh.

[Papers read in Committees 3,4 and 5 of the Scientific Conference of the U.S.S.R.; plenary sessions and Committee 3] Doklady ot SSSR nauchnoi konferentsii komissii 3, 4 i 5...; Plenarnaia sessiia i Komissii 3. Moskva, 1958. 121 p. (MIRA 14:9)

1. International Institute of Refrigeration.  
(Refrigeration and refrigerating machinery) (Food, Frozen)  
(Air conditioning—Equipment and supplies)



KOBULASHVILI, Sh.

~~Refrigerating machinery for trade organisations. Sov. tung.~~  
no. 2:44-45 p. '58. (MIRA 11:1)

1. Direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta  
kholodil'noy promyshlennosti im. A.I. Mikoyana.  
(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh. and ROTENBERG, A.

Kobulashvili, Sh. and Rotenberg, A. (Scientific Research Institute of the Refrigerating Industry of the USSR, Moscow): "A New Conveyor-Type Quick Freezing Unit for Freezing Foods" /French- 11 pages/

report presented at the International Inst. of Refrigeration (IIR), Annual Meeting of Commissions 3,4, and 5, Moscow, 3-6 Sep 1958.

KOBULASHVILI, Sh.

(The Scientific Research Institute of the Refrigerating Industry, Moscow):  
"Main Trends in Designing Food Quick Freezing Units in the USSR" /English - 22 pages/  
report presented at the International Inst. of Refrigeration (IIR), Annual  
Meetings of Commissions 3,4, and 5, Moscow, 3-6 Sep 1958.

KOBULASHVILI, Sh., YAKOVLEV, N.

Operation of the circulation system of cooling. Khel. tekhn. 35  
no.2:51-55 Mr-Apr '58. (MIRA 11:4)  
(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh.; ROMANOV, M.; ROTENBERG, A.; KHACHATUROV, A.

More attention to the quick freezing of food products [with  
summary in English]. Khol.tekh. 35 no.6:4-9 N-D '58.

(MIRA 12:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy  
promyshlennosti.

(Food, Frozen) (Refrigeration and refrigerating machinery)

KOBULASHVILI Sh. N

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PHASE I BOOK EXPLOITATION SOV/3747

International Congress of Refrigeration. Moscow, 1958

Sbornik dokladov ot SSSR (Collected Soviet Reports) Moscow, Gostorgizdat, 1959. 214 p. Errata slip inserted. 2,000 copies printed.

Ed. (Title page): Sh. N. Kobulashvili; Ed. (Inside book): N. V. Chichkov;  
Tech. Ed.: V. V. Babicheva.

**PURPOSE:** This collection of articles is intended for those interested in the problems of food refrigeration.

**COVERAGE:** The collection contains 26 reports which were submitted at the meeting of the 3rd, 4th, and 5th Committees of the International Institute of Refrigeration. The meeting was held in Moscow, September 3-6, 1958, and was attended by 265 Soviet specialists and 115 representatives from other countries. The 73 reports discussed at this meeting cover such broad areas as the automation of the cooling of refrigerating installations, the use of finned-tube type refrigerating devices, fast-freezing food freezers, the

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Collected Soviet Reports (Cont.)

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theory and technique of rapid cooling and freezing of meat and fish, the use of antibiotics in the cold storage of food, and the operation of refrigerators and cooling systems. A complete account of the proceedings of this meeting was published by the International Institute of Refrigeration in 1959. No personalities are mentioned. References follow several of the articles.

TABLE OF CONTENTS:

Foreword

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PLENARY SESSION

Kobulashvili, Sh. [Vsesoyuznyy nauchno-issledovatel'skiy institut khlebnoy promyshlennosti imeni A. I. Mikhoyana (All-Union Scientific Research Institute of the Refrigeration Industry imeni A. I. Mikhoyan)]. Basic Trends in the Design of Fast-Freezing Food Freezers in the USSR

5

Zaytsev, V. P. [Vsesoyuznyy nauchno-issledovatel'skiy institut morskogo rybnogo khozyaystva i okeanografii (All-Union Scientific Research Institute of Sea Fisheries and Oceanography)], and Ye. G. Pavlov [Otdel rybnoy promyshlennosti Gosplana SSSR (Department of the Fishing Industry, Gosplan USSR)]. Fish Freezing on Seagoing Ships in the USSR

32

Card 2/9

KOBULASHVILI, Sh. N., MARTYNOV, M. S., SHAPOVALENKO, M. H.

"Operation of Mechanically Refrigerated Railway Trains in the USSR."

Report submitted for the 10th Intl. Refrigeration Congress, Copenhagen,  
19 August - 2 September 1959.



KOBULASHVILI, Sh.M., red.; CHICHKOV, N.V., red.; BABICHNYA, V.V., tekhn.  
red.

[Collection of Soviet reports at the Moscow Conference of the  
International Institute of Refrigeration] Sbornik dokladov ot  
SSSR na Moskovskoi konferentsii Mezhdunarodnogo instituta kho-  
loda. Pod red. Sh.M.Kobulashvili. Moskva, Gos.izd-vo torg.  
lit-ry, 1959. 214 p. (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy  
promyshlennosti im. A.I.Mikoyana (for Kobulashvili)  
(Refrigeration and refrigerating machinery--Congresses)

SOV/66-59-4-1/28

14(1)

AUTHOR: Kobulashvili, Sh. Director

TITLE: Aims in the Development of Refrigeration Engineering From 1959-1965

PERIODICAL: Kholodil'naya tekhnika, 1959, Nr 4, pp 1-5 (USSR)

ABSTRACT: One of the principal aims in the development of refrigeration engineering is the production of new highly efficient automatic refrigerators, full automation of industrial refrigerating installations, modern methods of deep freeze processing of food, and introduction of the latest systems of air conditioning. This necessitates organization of serial production of various new types of compressors for different purposes. Existing plants should specialize in the production of specific types of refrigerating equipment and new plants should be built. The present trend is toward refrigerators with small hermetically closed units. A number of new plants are needed for the production of insulating material, of which some 3 million cu m will be used during the 7-year period. The annual output should be around 700,000 cu m of insulating material by 1965. Deep freeze installations should be capable of processing annually 2 1/2 million ton of food, which means that until 1965 some 2,800 deep freezing installations must be put into operation. Refrigerated storage

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SON/66-59-4-1/28

Aims in the Development of Refrigeration Engineering From 1959-1965

space is to increase more than twofold. Of the 15,000 isothermic RR cars, which are scheduled to be built, 6,000 refrigeration cars will be equipped with mechanical refrigeration units. The fleet of refrigeration ships will be extended by additional ships of a total displacement of 500,000 ton. Particular attention is to be given to training qualified personnel in a number of schools.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti im. A.I. Mikoyana (All-Union Scientific Research Institute of Refrigeration Industry im. A.I. Mikoyan)

Card 2/2

14(1)

SOV/66-59-5-1/35

AUTHORS: Kobulashvili, Sh. and Mineyev, P.

TITLE: Development of Refrigeration Machine Building Is the Principal Task of the Current 7-Year Plan

PERIODICAL: Kholodil'naya tekhnika, 1959, Nr 5, pp 1-7 (USSR)

ABSTRACT: At the present time there are 7 leading plants in the USSR producing refrigeration machines. The author claims that as far as quality and performance are concerned, Soviet production is on the same level as Western European makes. The output of refrigerators is steadily increasing; compared with 1952 output ammonia refrigerators have increased 1.5 times and small Freon refrigerators 6 times. The article gives an estimate of the annual requirements for refrigerators in 1965. A number of new plants are scheduled to open in the USSR including Siberia. By 1965 a total of 30 plants will be engaged in the production of refrigeration equipment. A number of scientific institutes assist in development work; the following trends are being observed: small Freon refrigerators up to 20,000 kcal/hr will be hermetically closed and equipped with a built-in electric motor and with a compressor unit FGK-0.7. Similar units having a capacity of 700 kcal/hr are being pre-

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SOV/66-59-5-1/35

## Development of Refrigeration Machine Building Is the Principal Task of the Current 7-Year Plan

pared for serial production. Piston type ammonia and Freon compressors having a cold producing capacity of up to 400,000 kcal/hr and being equipped with a 200 kw electric motor will be of the vertical type with V-shaped form of cylinder; the number of cylinders is from 2 to 8. Scheduled for production are Freon-22 compressors with a boiling temperature of  $-80^{\circ}\text{C}$ . There are also being prepared turbo-compressors operating on ammonia, Freon or propane being equipped with a 2,500 kw motor. The Plant "Kompressor" has introduced a double stage compressor DAU-80 with a capacity of 80,000 kcal/hr at a boiling temperature of  $-40^{\circ}\text{C}$ . Great development work is being conducted in the designing of isothermic transportation by rail and by road. Refrigeration RR cars are being designed in sections of 3-5 cars equipped with individual refrigeration machines in each car but with one power plant in one car, distributing energy to all units. A number of refrigeration ships are planned with special refrigeration installations and machines for making ice, in large or small lumps, ground or in form of snow. Agriculture should be provided with autorefrigeration units and reservoirs for storing and

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SOV/66-59-5-1/35

Development of Refrigeration Machine Building Is the Principal Task of the Current 7-Year Plan

transporting milk. The main task for Soviet refrigeration engineering is automation, especially in regard to refrigeration plants and warehouses. Complete designs for fully automatic control of refrigeration installations have been elaborated by VNIKhI and the Central Designing Bureau but nothing has been done yet for producing the necessary equipment. Another important question is the training of personnel capable of taking care of refrigeration installations.

ASSOCIATION: VNIKhI (All-Union Scientific Research Institute of Refrigeration Industry (Sh. Kobulashvili), ~~TKBOM~~ (Central Designing Bureau of Refrigeration Machine Building) - (P. Minayev)

Card 3/3

*KOBULASHVILI Sh. N.*

BADYL'KMS, I.S., prof., doktor tekhn.nauk; BUKHMER, Ye.Z., insh.;  
 VNYMERO, B.S., kand.tekhn.nauk; VOL'SKAYA, L.S., insh.; GERSH,  
 S.Ya., prof., doktor tekhn.nauk [deceased]; GUREVICH, Ye.S., insh.;  
 DANILOVA, G.N., kand.tekhn.nauk; IMFINOVA, Ye.V., insh.; IOFFE,  
 D.M., kand.tekhn.nauk; KAN, K.D., kand.tekhn.nauk; LAVROVA, V.V.,  
 insh.; KUDOVAR, L.Ye., insh.; ROSENFE'D, L.M., prof., doktor tekhn.  
 nauk; TKACHOV, A.G., prof., doktor tekhn.nauk; TSYLIN, B.L.;  
 SHUMILISHKII, M.G., insh.; SHCHERBAKOV, V.S., insh.; YAKOBSON, V.B.,  
 kand.tekhn.nauk; GOGOLIN, A.A., retsenzent; GUKHMAN, A.A., retsenzent;  
 KARPOV, A.V., retsenzent; KURIL'Y, Ye.S., retsenzent; LIVSHITS, A.B.,  
 retsenzent; CHISTYAKOV, P.M., retsenzent; SHNYTLIN, A.Ye., retsen-  
 sent; SHUMSHEDINOV, G.A., retsenzent; PAVLOV, B.V., spetsred.;  
 KOBULASHVILI, Sh.N., glavnyy red.; RYTOV, D.G., zam.glavnogo red.;  
 GOLOVKIN, N.A., red.; CHIRKOV, G.B., red.; NAZAROV, B.A., glavnyy  
 red.isd-vs; NIKOLAYEVA, N.G., red.; NYDINOVA, S.G., mladshiy red.;  
 MUDRISH, D.M., tekhn.red.

[Refrigeration engineering; encyclopedic reference book in three  
 volumes] Kholodil'naya tekhnika; entsiklopedicheskiy spravochnik  
 v trekh knigakh. Glav.red. Sh.N.Kobulashvili i dr. Leningrad,  
 Gostorgizdat. Vol.1. [Techniques of the production of artificial  
 cold] Tekhnika proizvodstva iskusstvennogo kholoda. 1960. 544 p.

(MIRA 13:12)

(Refrigeration and refrigerating machinery)

ALEKSANDROV, S.V.---(continued) Card 2.

1. Vsesoyuznyy institut rasteniyevodstva (for Sechkarov, Lisgunova, Breshnev, Gosenbush, Meshcherov, Filov, Tkachenko, Kozakova, Krasochkin, Levandovskaya, Shebelina, Syskova, Makashova, Ivanov, Martynov, Girenko, Ivanova, Shilova). 2. Gribovskaya ovoshhnaya selektsionnaya opytная stantsiya; chleny-korrespondenty Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Alpat'yev, Solov'yeva). 3. Deystvitel'nyy chlen Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Breshnev).  
(Vegetables--Varieties)



BADYL'KES, I.; KOBULASHVILI, Sh.

New system of refrigeration in cold storage warehouses. Khol.tekh.  
37 no.3:5-12 My-Je '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy  
promyshlennosti.

(Cold storage warehouses)

(Refrigeration and refrigerating machinery)

KONILASHVILI, Sh.

Readers express their opinions of the journal "Kholodil'naya  
tekhnika." Khol.tekh. 37 no.5:77-78 8-0 '60. (MIRA 13:10)  
(Refrigeration and refrigerating machinery--Periodicals)

KOBULASHVILI, Sh.N.

Co-ordination of scientific research is a problem of the utmost importance. Khol. tekhn. 38 no.3:1-3 My-Je '61. (MIRA 15:1)

1. Direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta kholodil'noy promyshlennosti im. A.I. Mikoyana.  
(Refrigeration ~~and~~ refrigerating ~~machinery~~ research)

KOBULASHVILI, Sh.N.

For closer creative cooperation between science and industry. Khol.  
tekh. 38 no.4:1-4 31-Ag '61. (MIRA 15:1)

1. Direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta  
kholodil'noy promyshlennosti im. A.I.Mikoyana.  
(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh.N.

Development of research in the field of refrigerating equipment  
between the two congresses. Khol. tekhn. 38 no.5:4-8 8-0 '61.  
(MIRA 15:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy  
promyshlennosti imeni A.I.Mikoyana.  
(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh.N., inzh.

Automatically controlled one-story cold storage plant in Vitry-sur-Seine (France). Khol.tekh. 39 no.2:61-70 Mr-Ap '62. (MIRA 1514)

(France--Cold storage warehouses)

KOBULASHVILI, Sh.N.; ROTENBERG, A.G.; TIKHOMIROVA, L.N.; KAMINARSKAYA, A.K.;  
KOTOVICH, A.O.

Quick-freeze OKA-2 apparatus mounted on a gravity conveyor. Khol.tekh.  
39 no.4:4-11 J1-Ag '62. (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti (for Kobulashvili, Rotenberg, Tikhomirova, Kaminarskaya).
2. Tsentral'nyy nauchno-issledovatel'skiy institut konservnoy i ovoshche-sushil'noy promyshlennosti (for Kotovich).

KOBULASHVILI, Sh.M.; ROTENBERG, A.G.; ROMANOV, M.M.; KRIVOV,  
A.G.; KAPLON, M.S., red.; MEDRISH, D.M., tekhn.red.

[New apparatus for quick freezing] Novye skorokorostil'-  
nye apparaty; nauchnoe soobshchenie. Moskva, Gostorgizdat,  
1963. 65 p. (MIRA 17:1)



KOBULASHVILI, Sh.N.

Forty years of work of the "Kholodil'naya tekhnika" journal and its immediate tasks, Khol.tekh. 40 no.1:5-8 Ja-F '63. (MIRA 16:3)

1. Direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta kholodil'noy promyshlennosti, glavnyy redaktor zhurnala "Kholodil'naya tekhnika". (Refrigeration and refrigerating machinery--Periodicals)

KOBULASHVILI, Sh.N.

Automation of large wholesale cold storage warehouses. Ser.III;  
Nov.mash., obor. i sred.avtomatis. no.59:4-11 '63. (MIRA 16:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy  
promyshlennosti.

KOBULASHVILI, Ye. A.:

KOBULASHVILI, Ye. A.: "On the problem of treating acute odontogenic osteomyelitis and concerning changes in the content of certain minerals in the blood and saliva". Tbilisi, 1955. Georgian Publishing House for Medical Literature. Tbilisi State Medical Inst. (Dissertations for the Degree of Candidate of Medical Sciences.)

So. Knizhnaya letopis'. No. 49, 3 December 1955: Moscow.

KUBIN IYA, I.G.

Change in total gas exchange and arterial pressure under the  
conditions of curarization and dosed artificial respiration.  
Soob. AN Gruz. SSR 38 no.2:471-478 Py '65.

(MIRA 18:9)

99-12-1/7

*Kobuliya, G.S.*

**AUTHOR:** Kobuliya, G.S., Deputy Minister of Water Resources of the Georgian SSR

**TITLE:** Water Resources of the Georgian SSR (Vodnoye khozyaystvo Gruzinskoy SSR)

**PERIODICAL:** Gidrotekhnika i Melioratsiya, 1957, # 12, p 3-11 (USSR)

**ABSTRACT:** As to climatic conditions, the Georgian SSR can be divided into two parts, which differ greatly - the western zone with humid subtropical temperatures requires drainage, and the eastern arid continental zone requires irrigation. Due to irregular distribution of precipitation during the vegetation period, the Samtredi, Tsulukidze, Kutaini, Zestafoni, Tskhaltubo and other districts have to be irrigated. Up to 1917, a total of 95,000 hectares were irrigated by primitive methods. By 1921, construction of irrigation and drainage systems was started on a large scale. Although the total quantity of water from the rivers (Kura with its tributaries, Rioni, Tskhenis-Tkali, Kvirila and others) sufficed for the operation of the various irrigation systems, measures for river regulation, re-channeling and storing of water had to be taken to insure a steady

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Water Resources of the Georgian SSR

99-12-1/7

supply of water. Up to 1941, the "Alazani", "Tiriponskaya", "Mashvel'skaya", "Pervaya Sovetskaya", "Digonskaya" and "Sogankukskaya" and several other smaller irrigation systems with a total acreage of 241,000 hectares were in operation. After 1945, the following engineering-type irrigation systems were completed: "Saltviskaya", "Doesi-Grakal'skaya", "Skra-Krel'skaya", "Tesi-Okamskaya", "Mukhranskaya", "Kekhvskaya", "Banatskaya" and "Adzhametskaya". At present, the acreage under irrigation amounts to 320,000 hectares, which is being constantly increased by new projects. Under construction are the following irrigation systems: the Verkhne-Samgor (with the Sioni reservoir) and the "Tshiskarskaya", planned to irrigate 53,000 hectares of eastern Georgia. A total of approximately 90,000 hectares will be irrigated by the Samgor irrigation system, the largest one in the republic. Two water reservoirs are in the planning stage: the Sioni with a storage capacity of 325 million cu m, fed by the Iori river, and the Tbilisi reservoir with a capacity of 308 million cu m. Hydroelectric power stations to be built within this system are to have a capacity of 30,000 kw. The total length of main distributing canals amounts to 430 km, of which 310 km are concrete-lined. Seven state farms were established in the Samgor area for the

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## Water Resources of the Georgian SSR

99-12-1/7

raising of special commercial crops. In eastern Georgia, minor canals and pumping stations are under construction, with the aid of which the total area under irrigation will be increased to 360,000 hectares. The biggest and most important canal planned to be built is the Verkhne-Alazani canal, which will supply water for 113,000 hectares of arable land and for 50,000 hectares of pasture. Further plans call for re-channeling of the rivers of the Gornaya Tushetiya into the basin of the Alazani river, by which the arable area will be increased by 152,000 hectares. Draining the Kolkhida lowlands with an area of 220,000 hectares is the largest melioration project of the republic. At present, 83,000 hectares of former swamps are improved and used for farming. Complex reclamation measures are planned with this project, including drainage, flood control, road building, and water supply. During the Soviet regime a total of 101,000 hectares of swamps were reclaimed. During the past years attention was given to underground water resources, and numerous artesian wells were drilled in the republic. To facilitate operation of existing melioration systems, 26 administrative centers were founded. To supervise and plan projects pertaining to melioration and water resources, the organizations "Kolkhidstroy" and "Samgorvodstroy" were founded,

Card 3/4

KOSULNICZY, E. 1948

(2nd Med. Clinic, U. of Budapest)

"Peptic Ulcer and the Hypophyseal-Hypothalamic System."

Schweiz. Medizin. Woch. 1948, 78/34(832-833)

Abst: Exc. Med. 111, Vol. 111, No. 5, p. 205



KOBULNICZKY, E. 1948

(11 Med. Clin. U. of Budapest)

"Peptic Ulcer and the Hypophyseal-Hypothalamic System."

Schweiz. Med. Wochenschrift., Basle, 1948, 78/34 (832-833)  
Abst: Exc. Med. V. Vol. 11, Vol. 10, p. 771

KOBULNIOZKY, Emil, dr.; FINCHICZKY, Klara, dr.; SZABOLCS, Paula, dr.

Successful cortisone therapy in cyclic agranulocytosis complicated with lung abscess. Orv. hetil. 97 no.40:1118-1119 30 Sept 56.

1. A Gyógyási Varosi Korhas Belcsstalyanak koslenenye.

(AGRANULOCYTOSIS, ther.

cortisone, in cyclic agranulocytosis with lung abscess, leukocytosis & pneumonia (Hun))

(LUNGS, abscess

in cyclic agranulocytosis with leukocytosis & pneumonia, cortisone ther. (Hun))

(PNEUMONIA, etiol. & pathogen.

agranulocytosis, cyclic, with lung abscess & leukocytosis, cortisone ther. (Hun))

(LEUKOCYTOSIS, etiol. & pathogen.

agranulocytosis, cyclic, with lung abscess & pneumonia, cortisone ther. (Hun))

(CORTISONE, ther. use

agranulocytosis, cyclic, with lung abscess, leukocytosis & pneumonia (Hun))

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137-58-6-11729

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 74 (USSR)

AUTHOR: ~~Koburnayev, I.M.~~

TITLE: A Brief Characterization of the Furnaces of a Foundry and of Their Functioning (Kratkaya kharakteristika pechey zavoda i ikh rabota)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1957, Vol 18, pp 229-242

ABSTRACT: With the conversion of the open-hearth furnaces of the im. Dzerzhinskiy Plant to evaporative cooling, heat losses through the open surfaces of water-cooled parts have increased. The plant is employing insulation of all the vertical portions of the superstructure of the furnace except for the ends of the uptakes. Blower air is delivered through an ejector into the end of the ducts, or else through tubes built into the body of the gas duct. Forsterite brick, at 1350°C, proves best in regenerator port service. A design solution has to be found for relief of the loads on the supporting arches and walls of the slag pits. This would make it possible to raise the temperature in the ports to over 1350°. The distribution of

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137-58-6-11729

**A Brief Characterization (cont.)**

combustion product flow in the regenerator is affected by the ratio of the spaces above and below the checkers. For better employment of the heat in the products of combustion it is proposed to employ a checker system that would use these products three times, and to reduce the thickness of the checker brick. To reduce the losses of air through the pipe duct, valves with water seals are installed along the air route in this plant.

M.M.

1. Open hearth furnaces--Operation
2. Open hearth furnaces--Design
3. Open hearth furnaces--Materials

Card 2/2

KOROLEV, A.I.; BLINOV, S.T.; LUBENETS, I.A.; KOBURNEYEV, I.M.; TURUBINER, A.L.; VASIL'YEV, S.V.; CHERNENKO, M.A.; BELOV, I.V.; TELESOV, S.A.; MAZOV, V.P.; MEDVEDEV, V.A.; MAL'KOV, V.G.; BUL'SKIY, M.T.; TRUBETSKOV, K.M.; SHENYEROV, Ya.A.; SLADKOSHTEYN, V.T.; PALANT, V.I.; KUROCHKIN, B.N.; ZHDANOV, A.M.; BELIKOV, K.N.; SABIYEV, M.P.; GANBUX, O.A.; PODGORNETSKIY, A.A.; ALFEROV, K.S.; NOVOLODSKIY, P.I.; MOROZOV, A.N.; VASIL'YEV, A.N.; MARAKHOVSKIY, I.S.; MALAKH, A.V.; VERKHOVTSYEV, N.V.; AGAPOV, V.P.; VECHEK, N.A.; PASTUKHOV, A.I.; BORODULIN, A.I.; VAYNSHTEYN, O.Ya.; ZHIGULIN, V.I.; DIKSHTEYN, Ye.I.; KLIMASHENKO, L.S.; KOTIN, A.S.; MOLOTKOV, N.A.; SIVERSKIY, M.V.; ZHIDETSKIY, D.P.; MIKHAYLETS, N.S.; SLEPKANOV, P.N.; ZAVODOCHIKOV, N.G.; GUDENCHUK, V.A.; NAZAROV, P.M.; SAVOS'KIN, M.Ye.; NIKOLAYEV, A.S.

Reports (brief annotations). Bul. TSNIICM no.18/19:36-39 '57.

(MIRA 11:4)

1. Magnitogorskiy metallurgicheskiy kombinat (for Korolev, Belikov, Agapov, Dikshteyn). 2. Kuznetskiy metallurgicheskiy kombinat (for Blinov, Vasil'yev, A.N., Borodulin, Klimashenko). 3. Chelyabinskiy metallurgicheskiy zavod (for Lubenets, Vaynshteyn). 4. Zavod im. Dzerzhinskogo (for Koburneyev). 5. Zavod "Zaporozhstal'" (for Turubiner, Mazov, Podgornetskiy, Marakhovskiy, Savos'kin). 6. Makeyevskiy metallurgicheskiy zavod (for Vasil'yev, S.V., Mal'kov, Zhidetskiy, Al'ferov). 7. Stal'proyekt (for Chernenko, Zhdanov, Zavodochikov). 8. VNIIT (for Belov). 9. Stalinskiy metallurgicheskiy zavod (for Telesov, Malakh).

(Continued on next card)

KOROLIV, A.I.--(continued) Card 2.

10. Nizhne-Tagil'skiy metallurgicheskiy kombinat (for Medvedev, Novolodskiy, Vecher). 11. Zavod "Azovstal'" (for Bul'skiy, Slepkanov). 12. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Trubetskov). 13. Ukrainskiy institut metallov (for Shneyerov, Sladkovskiyev, Kotin). 14. Zavod "Krasnyy Otkryabr'" (for Palant). 15. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki (for Kurochkin). 16. Zavod im. Voroshilova (for Shbiyev). 17. Chelyabinskiy politekhnicheskiy institut (for Morozov). 18. Oiprostal' (for Garbus). 19. Ural'skiy institut chernykh metallov (for Pastukhov). 20. Zavod im. Petrovskogo (for Zhigulin). 21. Ministerstvo chernoy metallurgii USSR (for Molotov, Siverakiy). 22. Olavspetstal' Ministerstva chernoy metallurgii SSSR (for Nikolayev).  
(Open-hearth process)



*ROBURN, J. E. V.*

**PHASE I BOOK EXPLOITATION**

**80V/4380**

**Zavod imeni Dzerzhinskogo, Dneprodzerzhinsk**

**Metallurgi v bor'be za tekhnicheskii progress (Metallurgists in the Fight for Technical Progress) [Moscow] Izd-vo VTsSPB Profizdat 1959 56 p. 3,000 copies printed.**

**Special Eds.: Ye. V. Kochinev, F.M. Novikova, and I.B. Polyak; Ed.: E.A. Makarova; Tech. Ed.: N.D. Shadrina.**

**PURPOSE:** This book is intended for technical personnel interested in metallurgical processes.

**COVERAGE:** The book contains 9 articles dealing with technical improvements developed and implemented by members at the Plant imeni Dzerzhinskiy, Dneprodzerzhinsk, of the Nauchno-tekhnicheskoye obshchestvo chernoy metallurgii (Scientific and Technical Society for Ferrous Metallurgy). Individual articles discuss techniques in limestone kilning, blast-furnace charges, intensification of open-hearth processes, ingot rolling, and improvements in rail production.

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**Metallurgists in the Fight for Technical Progress**

80V/4380

No personalities are mentioned. There are no references.

**TABLE OF CONTENTS:**

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Metallurgists in the Fight for Technical Progress

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Kuznetsov, M. [Engineer]. Improving the Quality of Rails  
Made of Bessemer Steel

34

Karpunin, A. [Engineer]. Heat Treatment of Rails

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Nikitskaya, V. [Engineer]. A New Steel for Rolling Tin Plate

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Polstayev, B. [Manager of Heat-Engineering Laboratory].  
Improvement in the Design of Recuperator Soaking Pits

51

AVAILABLE: Library of Congress (TN705.Z3)

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11-15-60

SOV/155-59-3-7/32

AUTHORS: Koburneyev, I.M., Petrov, S.A., Sorokin, A.A. and  
~~Timoshpol'skiy, I.S., Engineers~~

TITLE: A Rational Method of Feeding Compressed Air (Ratsional'nyy  
podvod kompressornogo vozdukha)

PERIODICAL: Stal', 1959, Nr 3, pp 212 - 214 (USSR)

ABSTRACT: In order to improve the state of flame in gas-fired  
185-ton and 370-ton open-hearth furnaces at the above  
works, a supply of compressed air (up to 2 000 nm<sup>3</sup>/h)  
through the water-cooled tuyeres situated on both sides  
of the gas port was introduced. Alternatively, a compressed  
air (600 - 800 nm<sup>3</sup>/h) through Laval nozzles was supplied  
to ejectors placed at the end of the gas port. This  
measure increased the output of the furnaces by 3% and  
decreased the consumption of fuel by 2-3%. In 1956, the  
supply of compressed air to 85-ton furnaces was modified;  
namely, it was introduced into the flame through three  
sections of tubes situated along the port (Figure 1).  
This mode of supplying air increased the output by 8-10%  
and decreased the consumption of fuel by 6-8%.  
Simultaneously due to a better control of the flame the  
durability of roofs increased. The comparison of operating

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SOV/133-59-3-7/32

**A Rational Method of Feeding Compressed Air**

indices without and with the use of compressed air is shown in Tables 1 and 2. It is thought that a similar supply of oxygen may be particularly beneficial. In this case, it would be sufficient to supply oxygen through 2-3 streams situated on both sides of the flame, where-upon the bottom streams would act on the bath, speeding up the steel-making process and particularly the decarburization of the bath. In order to protect the roof from the action of the flame it would be advantageous to supply compressed air through the tubes of the upper section (Figure 3). There are 2 tables and 3 figures.

**ASSOCIATION:** Zavod im. Dzerzhinskogo (im. Dzerzhinskiy Works)

Card 2/2

SOV/133-59-3-10/32

AUTHORS: Koburneyev, I.M. and Pogorelyy, V.P., Engineers

TITLE: Modernisation of Open-hearth Furnaces (Modernizatsiya martenovskikh pechey)

PERIODICAL: Stal', 1959, Nr 3, pp 224 - 226 (USSR)

ABSTRACT: Modernisation of the open-hearth furnaces and the transfer to basic refractories, which permitted higher thermal loads, led to an increase in output and an economy in the consumption of fuel in Nr 2 melting shop of the Dzerzhinskiy Works (Figure 1, Table 1). The modernisation of the furnaces is illustrated on an example of the reconstruction of a 75-ton open-hearth furnace in 1953. Main points: 1) replacement of dumpers on the air waste gas flues by valves with water seals (Figures 2 and 3); 2) separate supply of blast-furnace and coke-oven gas to valves; 3) improved reversing schedule (automatic reversing) (Figure 4); 4) increase in the volume of regenerators; 5) introduction of control dumper in air-fume flues; 6) strengthening of the bottom part of the furnace; 7) a decrease in the height of the roofs of slag pockets and regenerators and 8) the use of compressed air. As an illustration of the present efficiency of the

Card1/2

Modernisation of Open-hearth Furnaces

SOV/133-59-3-10/32

furnace operation data on five subsequent heats carried out in one day are given in Table 2.  
There are 4 figures and 2 tables.

ASSOCIATION: Zavod im. Dzerzhinskogo (im. Dzerzhinskiy Works)

Card 2/2

KOBUKNEYEV, I.M.; TIMOSHINPOL'SKIY, I.S., inzh.; CHYZOVA, I.A., inzh.;  
ISHCHENKO, V.K., inzh.; PEREDISTYY, V.I., inzh.

Using natural gas in triple flue open-hearth furnaces.

Stal' 24 no.5:419-420 My '64.

(MIRA 17:12)

1. Dneprovskiy metallurgicheskiy zavod im. Dzerzhinskogo.



PARIMONCHIK, I.B., insh.; SOROKIN, A.A., insh.; KUTSENKO, A.D., insh.;  
KARPUNIN, A.M., insh.; PAVLOVISEVA, N.I., kand. tekhn. nauk;  
KOBURNEYEV, I.M., insh.; YAKOVLEV, Yu.N., kand. tekhn. nauk;  
~~TRUSEV, A.I., insh.~~; ORCIYAN, V.S., insh.

Improving the flow during metal pouring. Stal' 24 no.5:  
425-426 My '64. (MIRA 17:12)

MINKOV, Aks.; KOBUROV, T.; MONOV, Al.

Complications and mortality according to materials of the N. I. Pirogov  
Institute for Urgent Medical Assistance. Suvrem. med., Sofia 8 no.7:  
28-35 1957.

1. Iz Instituta za bursna meditsinska pomoshoh "N. I. Pirogov". Ol.  
Lekar: B Devetakov.

(HYPERTENSION, statist.  
compl. & mortal.)

*Kobus Andrzej*  
POLAND/Electricity - Semiconductors

G-3

Abs Jour : Ref Zhur - Fizika, No 4, 1958, No 8608

Author : Kobus Andrzej

Inst : Not Given

Title : Measurement of the Lifetime of Minority Carriers in Germanium  
by Photomagneto-Electric Method.

Orig Pub : Zesz. nauk. Politechn. warsz., 1957, No 33, 21-40

Abstract : Description of a method for measuring the lifetime of carriers,  
based on the study of photomagneto-electric effect.

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KOBUS, A.

POLAND/Electricity - Semiconductors.

0

Abs Jour : Ref Zhur Fizika, No 8, 1959, 18200

Author : Kobus, Andrzej

Inst :

Title : Measurement of Mobility of Minority Carriers in Germanium by the Haynes-Shockley Method.

Orig Pub : Elektronika, 1958, 4, No 6, 183-201

Abstract : Apparatus for the measurement of the drift mobility of holes in n-Ge is described in detail.

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23311

P/019/60/009/004/002/006  
A224/A126

24.7500 1144, 1160, 1482

AUTHORS: Kobus, A., and Brochocki, A.

TITLE: Dislocations generated by change of pulling velocity of germanium monocrystals

PERIODICAL: Archiwum elektrotechniki v. 9, no. 4, 1960, 717 - 720

TEXT: Dislocations generated in germanium monocrystals pulled with a varying velocity are investigated. The crystals were drawn up by the Czochralski method in a vacuum apparatus from an induction-heated graphite crucible. The initial material was germanium having an electrical resistivity of about 50 ohm doped with antimony. The crystals were drawn up along the axis (112) at 4.8 and 30 cm/h successively and were then tested. Variations in the crystallization rate were determined by changes in the electrical crystal resistivity. A typical resistivity curve of the crystals studied is shown in Fig. 1. The dislocations were determined by cutting the crystals along the plane (111) and then etching them in a boiling solution of  $\text{KOH-K}_3\text{Fe}(\text{CN})_6$ . Figure 4 shows the dislocation density on the surface (curve a) and the average dislocation density in the crystal at successive variations of the pulling velocity (6). Based on the test results obtained, the authors conclude: 1) A much greater dislocation density

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A224/A126

Dislocations generated by change of pulling ....

is caused rather by decreasing the growth rate of the crystal than by increasing it. 2) A convex shape of the transient surface in the crystal is less advantageous from the viewpoint of the dislocation density than a concave one. 3) As a result of changing the crystal growth conditions, the shape variations of the isothermic surfaces take place first of all on the edge surfaces on which the greatest rate of the dislocation density is induced. 4) A heating of the monocystal by the crucible-side surfaces, or by additional heaters, diminishes the effect of the variations of pulling velocity, especially upon the crystal surface. The authors thank Professor Z. Majewski of the Zakład Elektroniki IPPT (Institute of Electronics of IPPT /Instytut Podstawowych Problemów Techniki - Institute of Basic Technical Problems/) for his comments on this work, and Master of Engineering J. Swiderski for conducting the measurements of the transient surface, and T. Katań, A. Dajno and A. Izbrowski for their assistance in growing monocystals and testing them. There are 5 figures and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: E. Billig: Some defects in crystals grown from the melt. Pt. 1, Defects caused by thermal stresses. (1956), No. 1200, s. 37.

SUBMITTED: March 4, 1960

Card 2/3

23312

P/019/60/009/004/003/006  
A224/A126

24.3600 (1035, 1385, 1482)

AUTHOR: Kobus, A.

TITLE: Germanium Hall Generator

PERIODICAL: Archiwum elektrotechniki, v. 9, no. 4, 1960, 720 - 722

TEXT: Basic electric properties of a new semiconducting device "Halo-  
tron Germanowy" (Germanium Hall Generator) are described. The operation of this  
new device is based on the Hall effect. It was developed by the Zakład Elektron-  
iki IPPT - PAN (Institute of Electronics of IPPT /Instytut Podstawowych Problemów  
Techniki - Institute of Basic Technical Problems/ of the PAS). A trial line of  
germanium Hall generators was made of n-type germanium monocrystals, having a  
resistivity  $\rho = 1 \text{ ohm/cm}$  and a Hall constant  $R_H = 4.5 \cdot 10^3 \text{ cm}^3/\text{coul}$ . Figure 1  
shows a schematic diagram of the germanium plate. The plate,  $12 \times 6 \times 0.2 \pm 0.5$   
mm, was cut from the germanium monocrystal and polished in CP4 [Abstracter's note  
meaning of CP4 not explained]. Thereafter, electrodes were soldered with tin in  
a vacuum furnace at about  $370^\circ\text{C}$  and the Hall generator obtained was sealed in a  
brass envelope filled with epoxy resin. The outside dimensions of the Hall gener-  
ator were  $16 \times 8 \times 1.7 \text{ mm}$ . Figure 2 shows static characteristics of the germani-

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# Germanium Hall Generator

um Hall generator,  $U = f(I, B)$ . These characteristics correspond to the average sensitivity  $\gamma = 0.82 \text{ V/AkGs}^x$  (volt-ampere-kilogauss). The plate resistance:  $R_x = 90 \text{ ohm}$ ,  $R_y = 50 \text{ ohm}$ . Figure 3 shows load characteristics of the Hall generator. Its maximum output power is  $500 \text{ } \mu\text{W}$  at  $I = 2 - 5 \text{ mA}$ . Figure 4 shows the temperature characteristic of the Hall generator. The temperature coefficient of the Hall voltage is defined as  $\beta = \frac{U}{U} \frac{1}{T}$ . Its average value is about 0.03% for the temperature range from  $0^\circ$  to  $+60^\circ\text{C}$ . When the temperature is increased above  $70^\circ\text{C}$ , a steep drop of the Hall voltage takes place, which often leads to the destruction of the element. The Hall generators are best suited for operation in systems with a high output resistance, e. g.: tube voltmeters or compensators. The author thanks Professor Z. Majewski of the Institute of Electronics of the IPPT for comments on this work, and Z. Chlepek and A. Dąbrowski for the assistance rendered. There are 4 figures and 2 non-Soviet bloc references. The references to the English-language publications read as follows: Conwell E. M.: Properties of silicon and germanium. PIRE 40(1952), s. 1327. Lofgren L.: Analog multiplier based on the Hall effect. J. A. Ph. 29 (1958) No. 2, s. 158

SUBMITTED: March 4, 1960.

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21309  
P/034/60/000/011/003/005  
A225/A126

24,7600(1043, 1127, 1158)

AUTHOR: Kobus, Andrzej, Master of Engineering

TITLE: Electrical properties of Hallotrons CH1 and CH3

PERIODICAL: Pomiary - Automatyka - Kontrola, no. 11, 1960, 446-449

TEXT: Semiconductor devices based on the Hall effect are constructed in Poland under the name Hallotron. Although not so spectacular as transistors, they may contribute to progress in electric instrumentation for telecommunication, automation, and electric power. Zakład Elektroniki IPPT - PAN (The Electronics Section of the Institute for Basic Problems of Technology, Polish Academy of Science) designed two such Hallotrons under the designations CH1 and CH3, the characteristics of which are given below. A Hallotron consists of a rectangular Germanium plate sized 12 x 6 mm, from 150 to 400 microns in thickness. 4 electrodes are soldered to the plate. The electrodes joined along the entire width conduct the control current, while the point-contact electrodes receive the transverse electric potential resulting from the control current  $I_x$  and the magnetic field  $B$ , which is perpendicular to the plate surface. The value of this potential is deter-

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P/034/60/000/011/003/005  
A225/A126

Electrical properties of Hallotrons CH1 and CH3

mined by the equations:

$$U_y = R_H \frac{I_x B}{Z}, \quad (1)$$

in which  $U_y$  - induced potential of the Hall effect;  $R_H = \frac{u_H}{\sigma}$  - Hall constant;  $u_H$  - mobility of carriers in the medium;  $\sigma$  - conductivity of the medium. The Germanium plate is mounted in a brass jacket filled with epoxide resin. The contacts between the electrodes and the plate must have low resistance, no rectifying effect, and must be arranged symmetrically (otherwise there will be a transverse potential even without a magnetic field). The electrode leads must not form loops. The sensitivity of a Hallotron is expressed by:

$$\gamma_o = \frac{U_y}{I_x B}. \quad (4)$$

The harmful Gauss effect (change of the resistivity of semiconductors in a magnetic field) is comparatively small in Germanium ( $3,600 \text{ cm}^2/\text{Vs}$ ). For a magnetic potential of 10 kGs the plate resistivity increases by about 10%. Other characteristics are given in the following chart:

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P/034/60/000/011/003/005  
A225/A126

Electrical properties of Hallotrons CH1 and CH3

PARAMETER:	Symbol:	Unit:	Type CH1	Type CH3
Mean longitudinal resistivity:	$R_x$	ohm	90	220
Mean transverse resistivity:	$R_y$	ohm	50	110
Maximum working current when cooled by surrounding air:	$I_{x\max}$	mA	50	30
Rated induction:	B	kGs	10	10
Maximum potential of Hall effect (if B = 10 kGs):	$U_{y\max}$	mV	440	810
Mean sensitivity:	$\alpha$	V/A kGs	0.86	2.6
Asymmetry coefficient:	$\beta$	V/A	1	5
Zero of induction function:	S	cm <sup>2</sup>	0.02-0.04	0.02-0.04
Maximum working temperature:	$t_{\max}$	°C	60	60
Temperature coefficient of resistivity:		%/°C	mean 0.5 max. 0.7	mean 0.5 max. 0.7
Temperature coefficient of Hall effect:		%/°C	mean -0.03 max. -0.065	mean -0.03 max. -0.065
Maximum output:	$P_{out}$	mW	0.8	1.2
Increase of resistivity with increasing magnetic potential (0-10 kGs):		%/kGs	mean 1.0	mean 1.0

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Electrical properties of Hallotrons CH1 and CH3

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P/034/60/000/011/003/005  
A225/A126

There are 12 figures, 1 table, 1 photograph and 5 Soviet-bloc references.

ASSOCIATION: Zakład Elektroniki IPPT - PAN (Electronics Section of the Institute for the Basic Problems of Technology, Polish Academy of Science)

Card 4/4

KOBUS, A. ✓

SURNAME (in caps); Given Names

Country: Poland

Academic Degrees: Not stated

Affiliation: Department of Electronics, ✓ Institute of Fundamental  
Technical Problems, Polish Academy of Sciences (Zakład  
Elektroniki, Instytut Podstawowych Problemów Techniki,  
PAN)

Source: Warsaw, Bulletin de l'Académie Polonaise des Sciences,  
Série des Sciences Techniques, Vol 9, No 2, Feb 61,  
pp 101-104.

Data: "On Secondary Asymmetry in Germanium Hall Generators."

KOBUS, A.

On secondary assymetry in germanium Hall generators. Bul Ac Pol  
tech 9 no.2:101-104 '61.

1. Department of Electronics, Institute of Fundamental Technical  
Problems, Polish Academy of Sciences. Presented by J. Grosskowski.

(Dynamos) (Germanium)

40818

9,2100

AUTHOR: Kobus, Andrzej

P/OS 62/000/004/004/005  
1010/1210

TITLE: An indium antimonide magnetoresistor

PERIODICAL: Przegląd elektroniki, no. 4, 1962, 183-185

TEXT: The magnetoresistive (Quasa) effect in InSb has been utilized by the author in the construction of a magnetoresistor. The magnetoresistor was shaped as a  $5 \times 5 \times 0.5$  mm square to approximate a Corbino disk in order to obtain maximum changes of resistance. One electrode was on the perimeter and the other in the middle of the square. Polycrystalline cadmium sulphide produced at the Institute of Physics of the Polish Academy of Sciences was used as the semiconductor. A prototype series of hermetized gausotrons GT-1, in epoxy resin, has been produced. The resistance of the elements without a magnetic field was 0.15-0.30 ohms. The drawback of these elements is a rather high temperature dependence (0.6% °C for 0-80°C) of their physical properties. Characteristic parameters of the GT-1 gausotron are given. There are 5 figures and 1 table.

ASSOCIATION: Zakład Elektroniki IPPT-PAN (the IPPT-PAN Electronics Institute enterprise)

Card 1/1

KOBUS, Andrzej

Secondary asymmetry in germanium Hall generators. Przegl  
elektroniki 3 no.7:375-379 J1 '62.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki,  
Polska Akademia Nauk, Warszawa.



KOBUS, Andrzej

Disclosing small etch pits on germanium. Przegl. elektroniki  
4 no.9:534-536 8'63

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki,  
Polska Akademia Nauk, Warszawa.

KOBUS, Andrzej

The GM4 miniature germanium Hall Generator. Przegl elektroniki  
5 no.3:111-113,114 Mr'64

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki,  
Polska Akademia Nauk, Warszawa.

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APPROVED FOR RELEASE

Z/0042/63/000/005/0251/0256

ACCESSION NR: APJ001758

AUTHOR: Kobus, Andrzej (Master Engineer)

TITLE: Thermal properties of Hall generators

SOURCE: Elektrotechnicky casopis no 5, 1963, 251-256

DTIC TAGS: Hall generator, semiconductor material, crystal, germanium, silicon,

ABSTRACT: The correlation between thermal properties of Hall generators and the semiconductor materials used to make these generators is analyzed. The thermal coefficients of specific resistance of a constant current, the thermal dependency of Hall current and Hall voltage are analyzed. A formula indicates that the thermal coefficient of a generator voltage depends on the supply circuit parameters as well as on the properties of semiconductor materials. Hall voltage thermal coefficient values for constant supply voltage and constant current are compiled in table 1. The thermal coefficient of the Hall generator current defined in a formula, indicates its

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ACCESSION NR: AP3001758

dependence on resistance. These current coefficients are compiled in a table for various supply circuit parameters. The discussion on effects of thermal coefficients have been limited to an ambient temperature of 300K. Thermal properties for various semiconductor materials are compiled. An analysis indicated a general advantage for Hall generators to be supplied with constant current in all cases of semiconductor materials with the exception of InSb. In cases of constant tension, Hall generators made of InAs proved to be better than those made of Ge and Si. "In conclusion I would like to thank Master Engineer L. Majewski for his numerous notes relative to this work." Orig. art. has: 6 formulas and 3 tables.

ASSOCIATION: Ustav elektroniki Institutu zakladnych problemow techniki PAN, Warsaw, (Department of Electronics, Institute of Fundamental Technical Problems)

SUBMITTED: 12 Nov 62

DATE ACQ: 17 Jun 63

ENCL: 00

SUB CODE: SD, MA, 00

NO REF SOV: 000

OTHER: 008

2/2

Cord